

Railroad Commission of Texas

Commercial Recycling Rules - Overview

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Environmental Permits & Support Unit



Disclaimer / Overview

- Environmental Permits: Background Information
- Rule 8 Amendments:
 - Non-Commercial Fluid Recycling
 - Non-Commercial Fluid Recycling Pit
- 16 Texas Administrative Code (TAC) Chapter 4, Subchapter B: Commercial Recycling Rules
 - Solid Waste Recycling: Divisions 2, 3 & 4
 - Fluid Recycling: Divisions 5 & 6

ENVIRONMENTAL PERMITS & SUPPORT



BACKGROUND INFORMATION



Environmental Permits & Support

- Covers the management of oil and gas waste at or near the surface
- Includes all disposal methods other than injection wells
- Permitting and Management of:
 - Pits
 - Landfarming and Landtreatment
 - Recycling
 - Reclamation Plants
 - Separation Facilities
 - Discharges
 - Waste Haulers
 - Others



Environmental Permits & Support

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- Permitting and Management of:
 - **Pits**
 - Landfarming and Land treatment
 - **Recycling – Fluids and Solid Waste**
 - Reclamation Plants
 - Separation Facilities
 - Discharges
 - Waste Haulers
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Associated Rules and Publications

Texas Administrative Code

- Title 16, Chapter 3– Water Protection
- Rule 57 – Reclamation Plants
- Rule 78 – Financial Security
- Rule 98 – Hazardous Waste Management
- Title 16, Chapter 4, Subchapter B – Commercial Recycling



Associated Rules and Publications

- **Rule 8 – Water Protection**
- **Rule 57 – Reclamation Plants**
- **Rule 78 – Financial Security**
- **Rule 98 – Hazardous Waste Management**
- **Chapter 4, Subchapter B – Commercial Recycling**
- ***Surface Waste Management Manual***

<http://www.rrc.texas.gov/oil-gas/applications-and-permits/environmental-permit-types-information/>



Rule 8 Background

- Environmental Permitting's Authority
- Subsections
 - (b) No Pollution
 - (d) Pollution Control
 - Prohibited / Authorized Disposal
 - Prohibited / Authorized Pits
 - Authorized Pit Backfilling requirements
 - Prohibited / Authorized Recycling



Rule 8 Background – Define ‘Authorized’

- Authorized (by Rule) – The disposal method as defined by rule can be used without permit from the Commission
- Authorized disposal methods may have specific requirements

Rule 8 Amendments



NON-COMMERCIAL FLUID RECYCLING



Authorized Fluid Recycling

Non-commercial Fluid Recycling –

“The recycling of fluid produced from an oil or gas well including produced formation fluid, work over fluid, and completion fluid, including [frac fluids] on an existing commission-designated lease or drilling unit... or upon land leased or owned by the operator for the purposes of operation of [a non-commercial disposal well (§3.9) or a non-commercial injection well (§3.46)]... where the operator ... treats or contracts ... for treatment, and may accept such fluid from other leases or operators.”



Authorized Fluid Recycling

- Who?
 - Oil and gas operators (or a contractor)
- What?
 - Treatment of produced water and frac flow-back for reuse
 - May accept fluids from and give fluids to other operators
- When/Where?
 - On a commission-designated lease or drilling unit associated with a drilling permit
 - On land leased or owned by the operator of a disposal or injection well



What's Recycling?

Recycle-

“To process and/or use or re-use oil and gas wastes as a product for which there is a legitimate commercial use and the actual use of the recyclable product.”

Injection is not recycling.



Authorized Reuse

- Reuse as makeup water, or other use in the wellbore of an oil, gas or geothermal well.
- Reuse in any other manner pursuant to a permit issued by another state or federal agency
- Any reuse if the water is distilled
- **No discharge to waters of the state without permit**

Rule 8 Amendments



NON-COMMERCIAL FLUID RECYCLING PITS



Rule 8 – Authorized Pits

- Authorized pits include:
 - **Non-commercial Fluid Recycling Pit**
 - Reserve pit
 - Completion/Workover pit (*including frac flow-back*)
 - Mud circulation pit
 - Fresh makeup water pit
- Authorized pits must be dewatered and backfilled in accordance with schedules found in Rule 8
- Rule 3.8(b) “No pollution” **ALWAYS** applies.



Authorized Fluid Recycling Pit

Non-commercial Fluid Recycling Pit -

“Pit ... for the storage of fluid for the purpose of Non-commercial Fluid Recycling or for the storage of treated fluid.”



Non-com. Fluid Recycling Pit requirements

- Authorizes Non-commercial: Fluid Recycling Pits to store fluid from an oil or gas well that will be treated and reused if:
 - Pit is lined
 - Liner has a hydraulic conductivity of 1×10^{-7} cm/s or less
 - Two feet of freeboard is maintained
 - Pit is emptied and inspected annually or it has a leak detection system (LDS) that is monitored monthly
 - District Office registration:
 - Pit location
 - Pit dimensions and capacity
 - Landowner permission signed statement



Rule 8 - Permitted Pits

- If a pit is not specifically authorized by Rule 8, a Form H-11 must be filed with Environmental Permits and a permit issued before use of the pit can begin.
- Examples of types of pits that require a permit:
 - **Commercial Fluid Recycling Pit**
 - Disposal Pit
 - Collecting Pit
 - Emergency Saltwater Storage Pit
 - Brine Pit
 - Washout Pit
 - Skimming Pit
 - Gas Plant Evaporation/Retention Pit



Rule 8 – Authorized Disposal

- Burial at *that* well site
 - Dewatered freshwater drilling muds >3,000 mg/L Cl
 - Cuttings associated with freshwater or oil-based muds >3,000 mg/L Cl
 - Freshwater drilling muds <3,000 mg/L Cl
 - Dewatered completion/workover pit wastes
- Landfarming on *that* lease
 - Freshwater drilling muds <3,000 mg/L Cl
- **Burial in an Non-commercial Fluid Recycling Pit**
 - **Dewatered wastes from a Non-commercial Fluid Recycling Pit**
- Rule 3.8(b) “No pollution” **ALWAYS** applies.



Related Modifications/Clarifications

Amendments clarify that Completion/Workover pits may store frac flow-back; **AND**

- that no authorized pits may be placed in the 100-year flood plain
 - Can be approved by District Director
 - May request hearing if denied



What's authorized, again?

Non-Commercial Fluid Recycling:

- “On-Lease” fluid treatment for reuse
 - “Downhole”
 - Other State/Federal Permit
 - As distilled water
- Pit for storage and treatment
- Burial of dewatered recycling wastes in pit
- Transport of waste and treated fluid

Must Be Permitted:

- Commercial Recycling under Chapter 4, Subchapter B
- Waste Hauling under Ch. 4, Subch. B
- Reuses not authorized by Rule 8
- Discharge to Surface Water



COMMERCIAL RECYCLING RULES



Chapter 4, Subchapter B Divisions

Six Divisions for Commercial Recycling Rules

1. General Requirements
2. On-Lease Solid Waste Recycling
3. Off-Lease or Centralized Solid Waste Recycling
4. Stationary Solid Waste Recycling
5. Off-Lease Fluid Recycling
6. Stationary Fluid Recycling

(Non-commercial Fluid Recycling authorized by Rule 8)



General Requirements (highlights)

- Permit will prohibit speculative waste accumulation
- Engineering and geological work products must be signed by their respective Texas-registered professionals, as required
- All oil and gas waste and recyclable product should be stored in **lined** permitted or authorized pits, or above-ground storage tanks
- Fluid recycling is exempted from permitting under Ch. 4, Subch. B at commercial disposal wells



COMMERCIAL RECYCLING RULES SOLID WASTE RECYCLING – DIVISIONS 2, 3 & 4



Solid Waste Recycling – Divisions 2, 3 & 4

- Treating O&G solids to create road base that can be used in the construction of lease roads, well pads, and county roads
- Rule establishes leachability standards for metals, chlorides, TPH and benzene and a minimum compressive strength requirement
- Road base product may have no more than 15% weight loss after 12 cycles of wetting and drying in Trial Run



Roadbase Analytical Requirements

PARAMETER	LIMITATION	METHOD
Arsenic	Less than 5.00 mg/l	EPA Method 1312, Synthetic Leaching Procedure (SPLP)
Barium	Less than 100.00 mg/l	
Cadmium	less than 1.00 mg/l	
Chromium (total)	less than 5.00 mg/l	
Lead	less than 5.00 mg/l	
Mercury	less than 0.20 mg/l	
Selenium	less than 1.00 mg/l	
Silver	less than 5.00 mg/l	
Zinc	less than 5.00 mg/l	
Benzene	less than 0.50 mg/l	
Chlorides	less than 700.00 mg/l	LDNR leachate test method 1:4 Solid Solution
TPH	less than 100 mg/l	
PH	6 to 12.49 Standard Units	
Minimum compressive strength	35 psi	A Texas Department of Transportation approved procedure appropriate for testing and evaluating a material for compressive strength.



On-Lease Solid Waste Recycling - **1 year**

- Treating O&G solids for reuse as roadbase from **one** lease or unit for reuse by the Generator

§4.218. General Permit Provisions.

- Surface Owner Permission
- 72-hour District Office Notification before siting

§4.219. Minimum Permit Provisions for Siting.

- Not in a 100-year flood plain
- Not in a “sensitive area” as defined by §3.91
- Not within 150 feet of surface water or water wells



On-Lease Solid Waste Recycling - 1 year

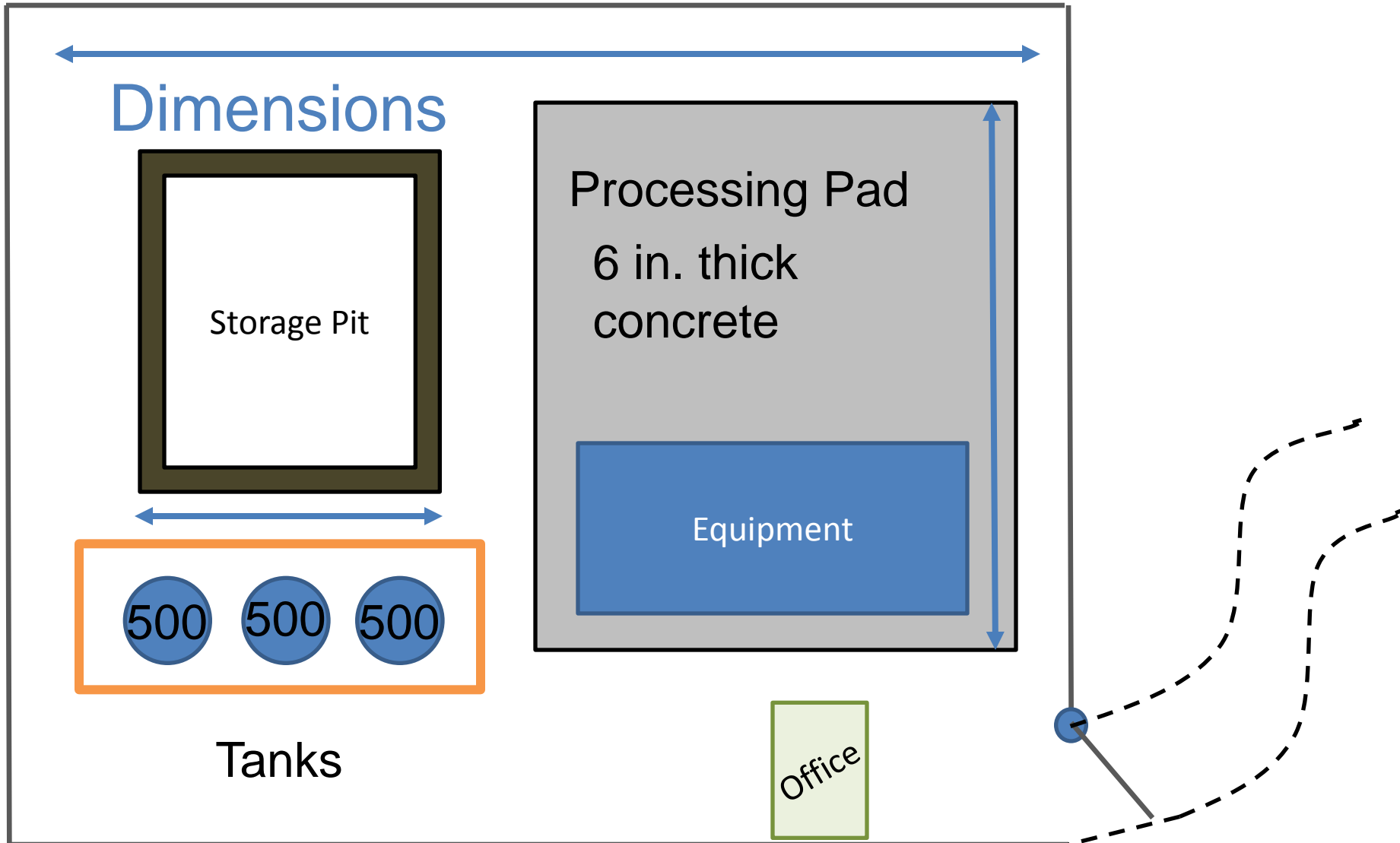
§4.214. & §4.220. Facility Design and Construction.

- Typical Layout
- Storage liners w/ thicknesses, cross-sections, plan view
- Storage must be above high water table and surrounded by berms
- Storm water plan for a 25-year, 24-hour rainfall event
- No discharge, No pollution

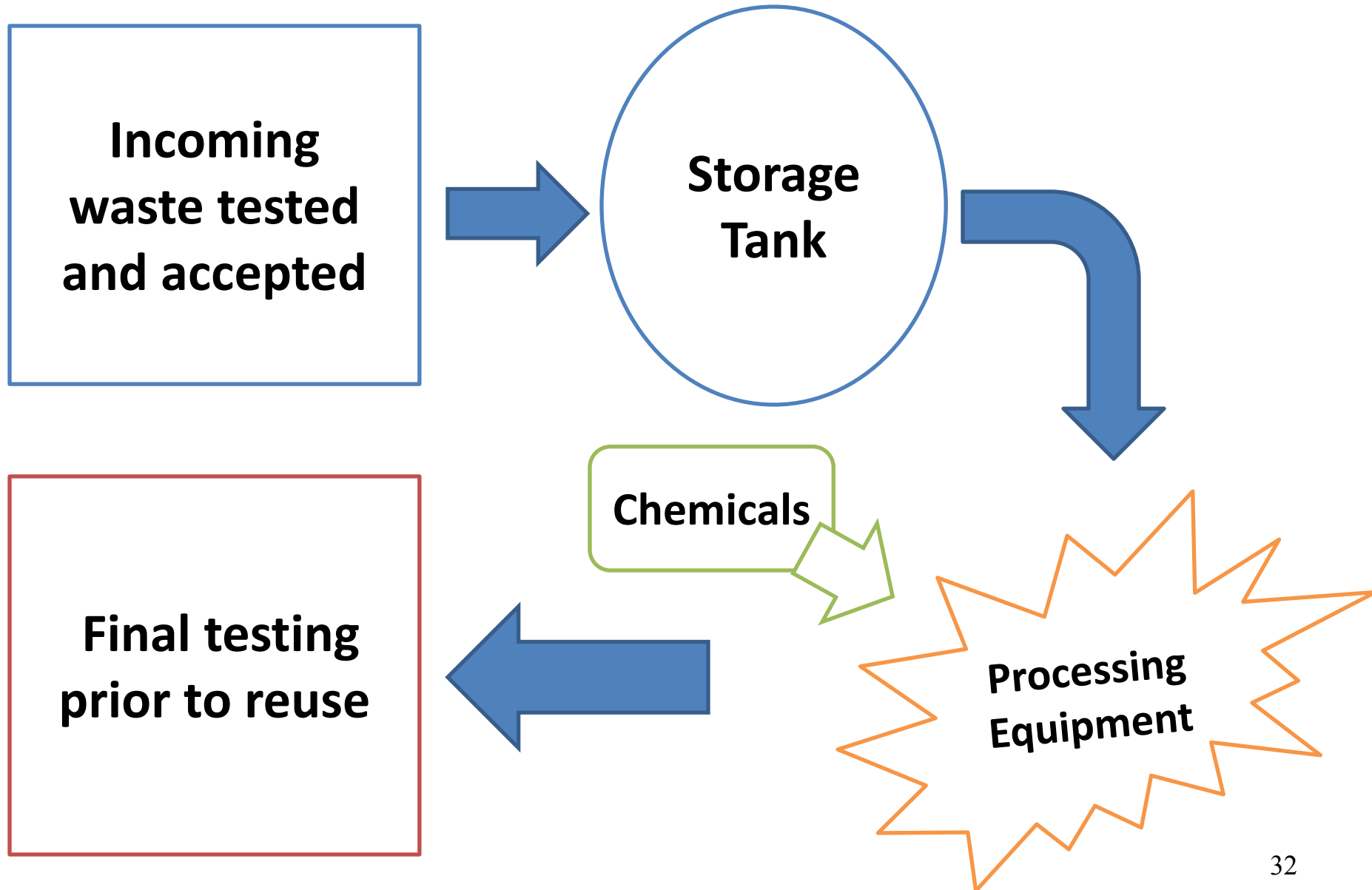
§4.215. & §4.221. Facility Operations.

- Process Description
- Inert materials & chemicals
- Waste acceptance plan
- Records of incoming waste, treated, recyclable material and testing
- Max. volumes & holding times
- Trial run of 1,000 cubic yards

Facility Diagram



Process Flow Diagram





On-Lease Solid Waste Recycling - **1 year**

§4.216. & §4.222. Facility Monitoring.

- Sampling Plan (a composite of four 200 ton grab samples)
- Regular facility inspections
- Quarterly Report of records and analytical, and
- Location of recyclable material used and notification of landowner

§4.217. & §4.223. Facility Closure.

- Remove all waste
- Clean/Remove all storage and equipment
- Return surface to original condition
- Soil sampling

Off-Lease or Centralized Solid Waste - 2 years



- Treating O&G solids for reuse as roadbase from **multiple** leases or units
- All applicable requirements from On-Lease Roadbase and...

§4.238. Notice.

- Notice of surface owner and adjoining property owners
- Including a copy of the application and how to protest

§4.239. General Permit Provisions.

- Financial Security
 - A bond or letter of credit filed with the Commission greater than or equal to the amount required to close the facility

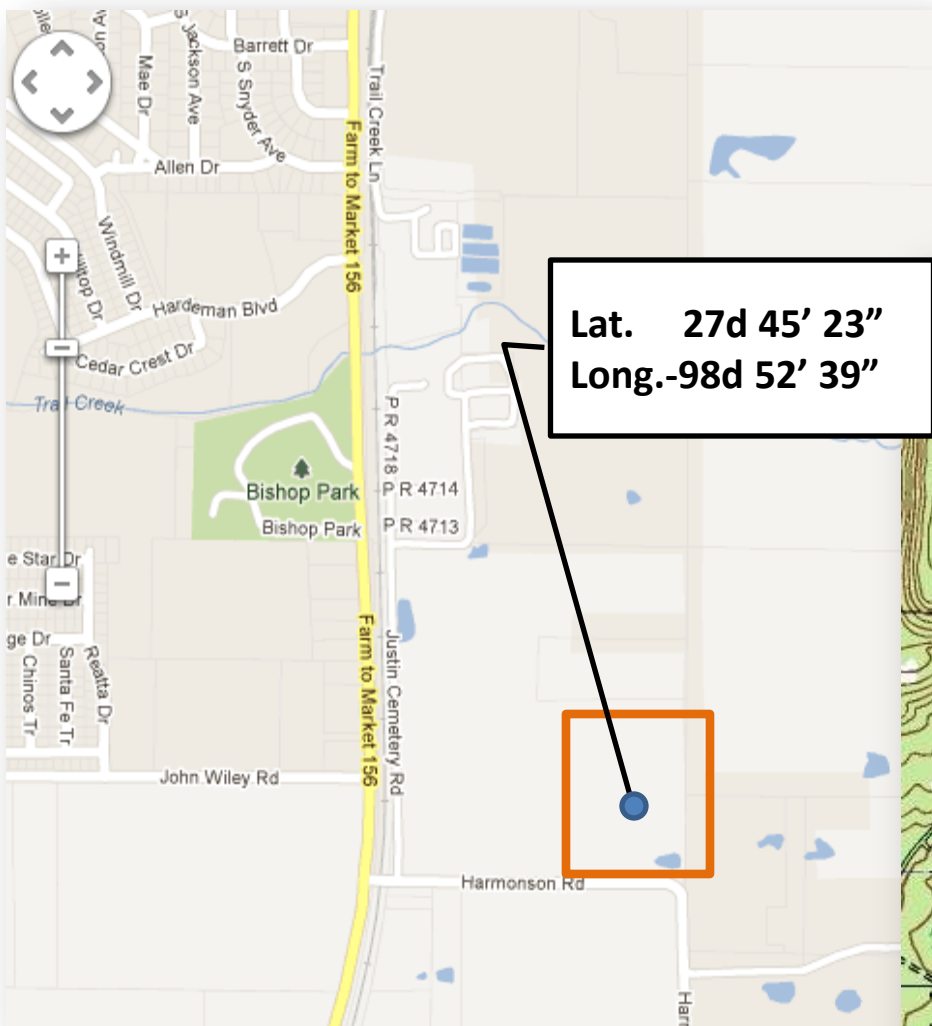


§4.232. Minimum Siting Information.

- General site information
 - Site description, highway map, address
- Site specific environmental information with sources
 - Precipitation/evaporation, topography, 100-year flood plain, depth to shallowest groundwater, geologic & soil maps



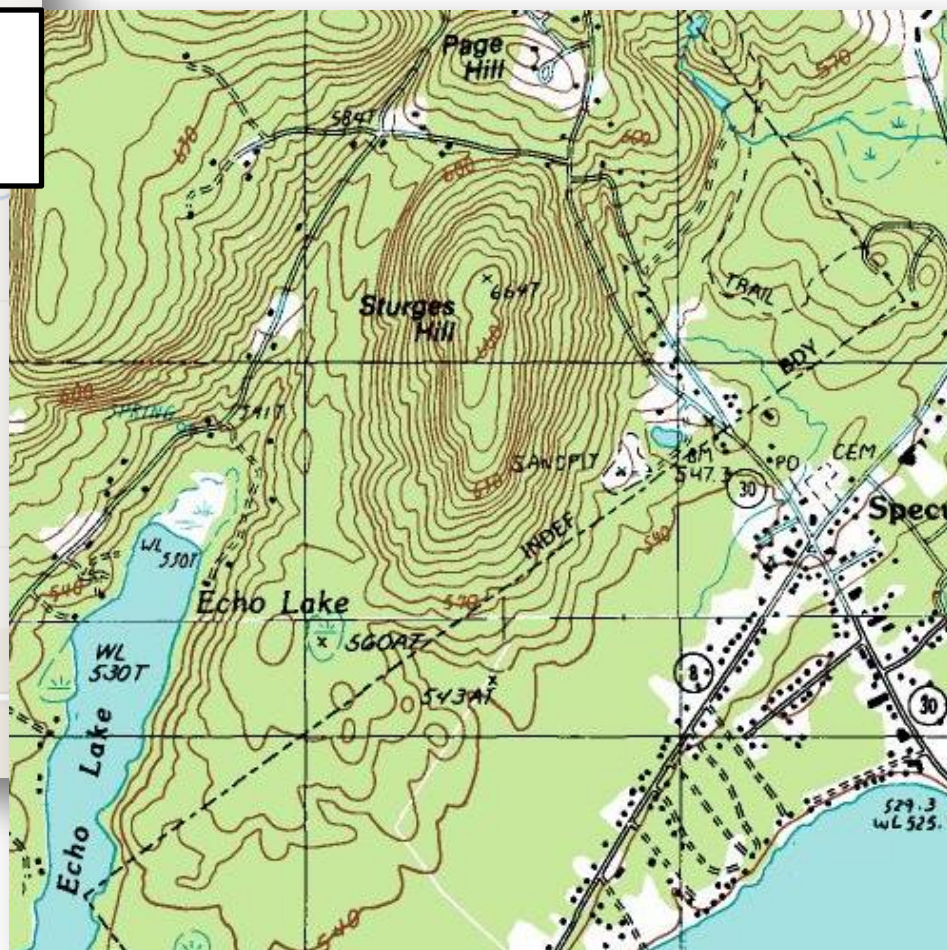
Minimum Siting Information



Lat. 27d 45' 23"
Long.-98d 52' 39"

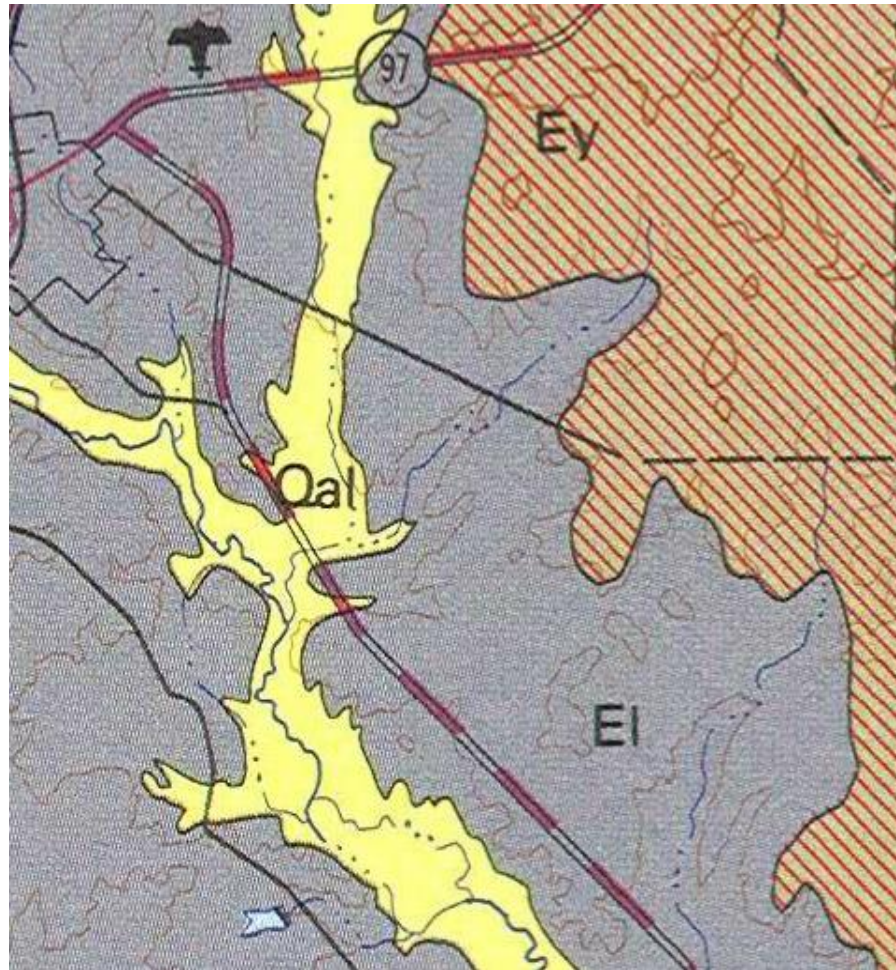
USGS Topographic Map

<http://nationalmap.gov/ustopo/index.html>



County Road map

Scale: 1" = 4 miles

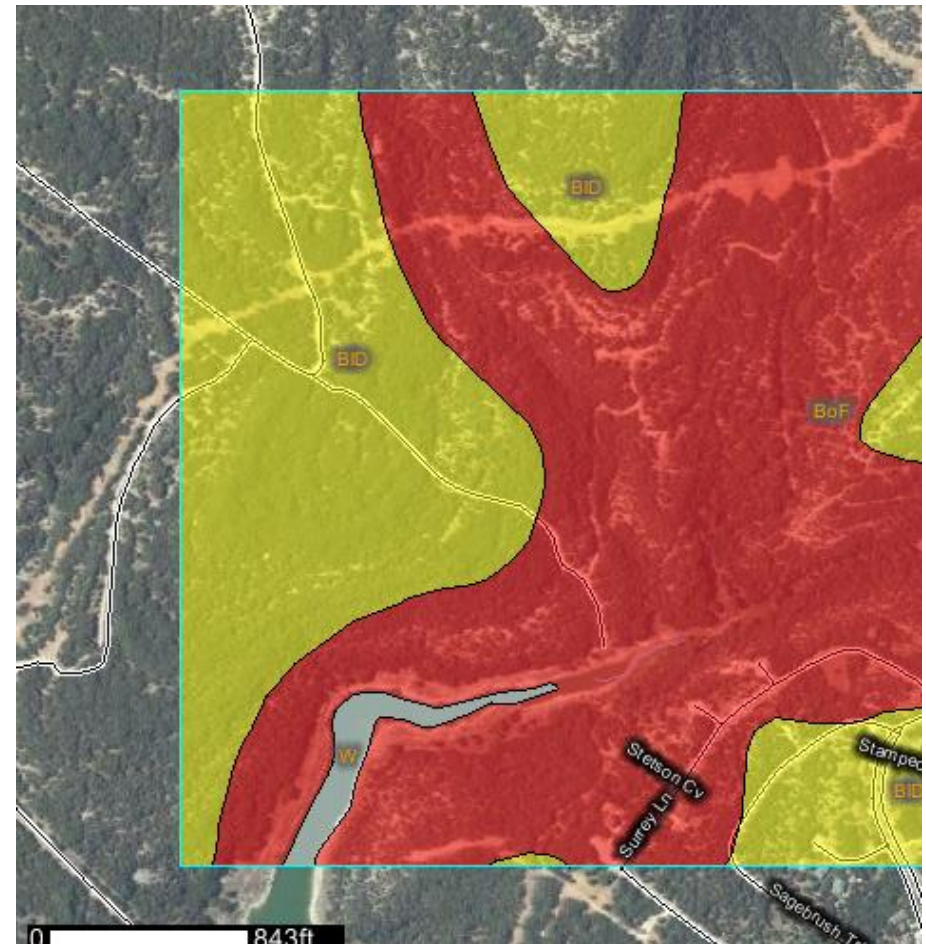


Soil Information

<http://websoilsurvey.nrcs.usda.gov>

Underlying subsoil (Geology)

www.twdb.state.tx.us/groundwater/aquifer/GAT

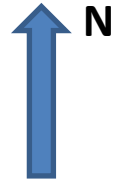




§4.233. Minimum Real Property Information.

- Lease agreement with surface owner and plats with
 - section/survey lines, facility boundary, adjoining tracts with surface owners indicated, and distance to receptors within 500 feet

Survey Plat



T & N.O.R.R.C.O

Facility

1.2 acres

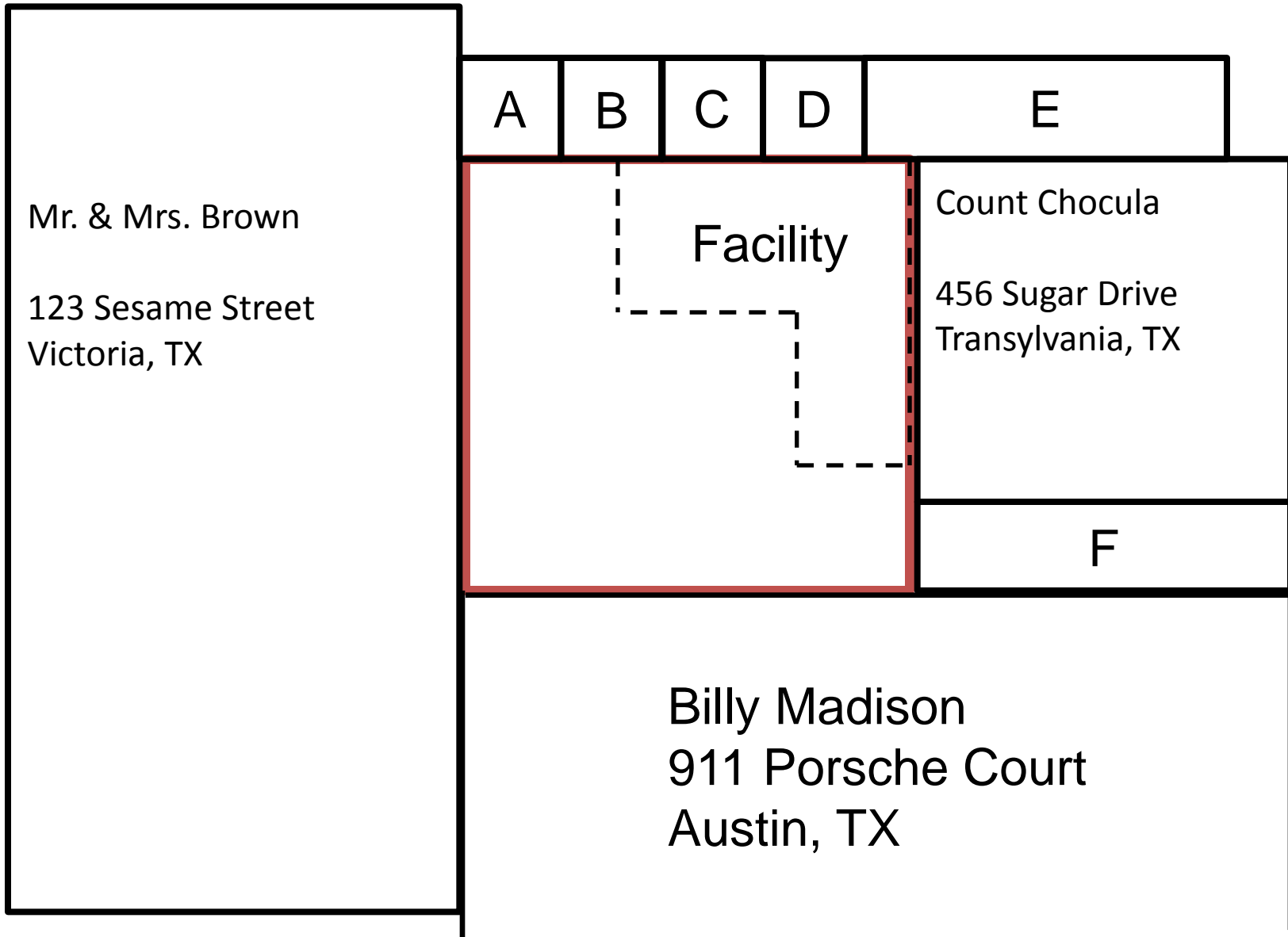
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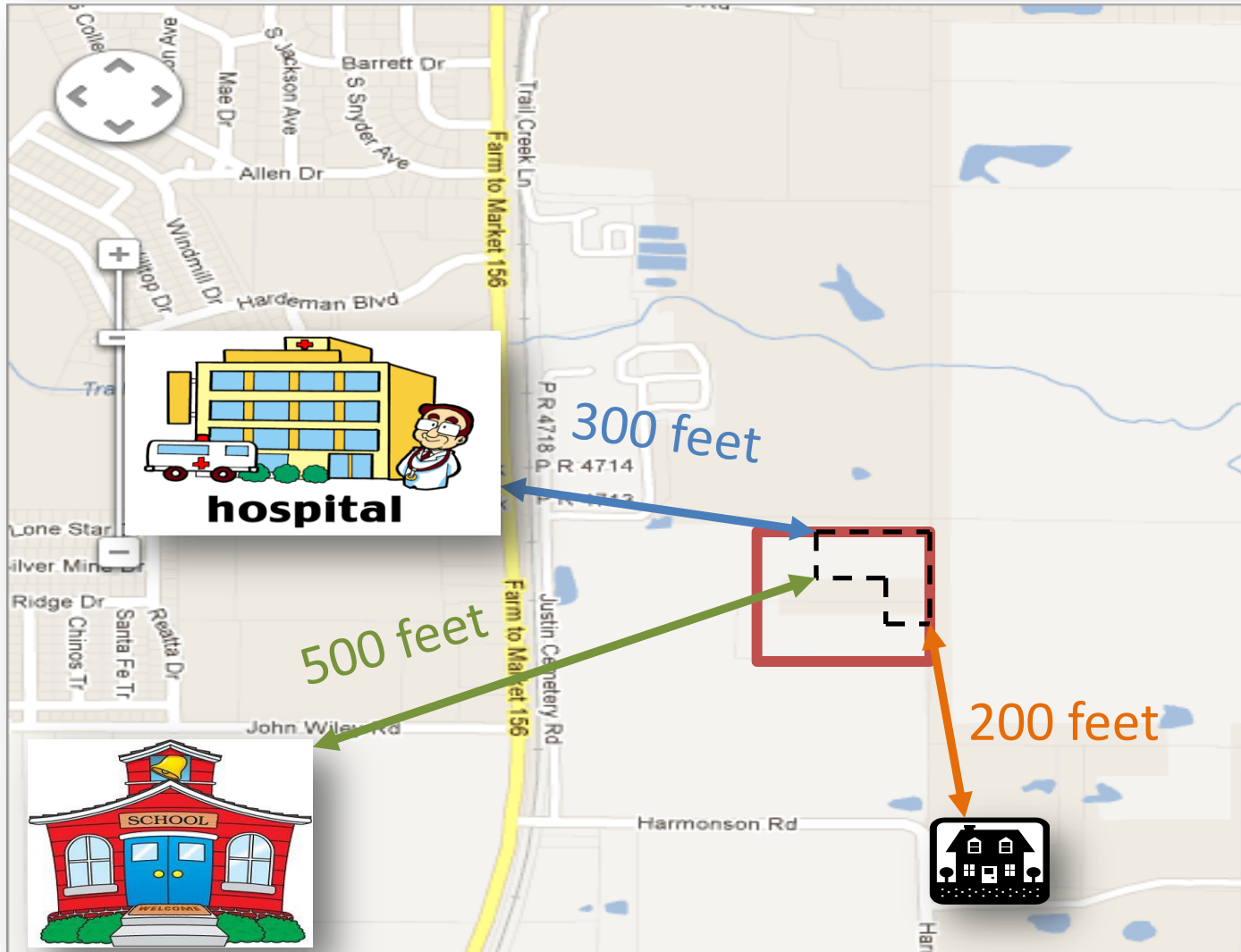
1 inch = 500 feet

V. Lang A-126

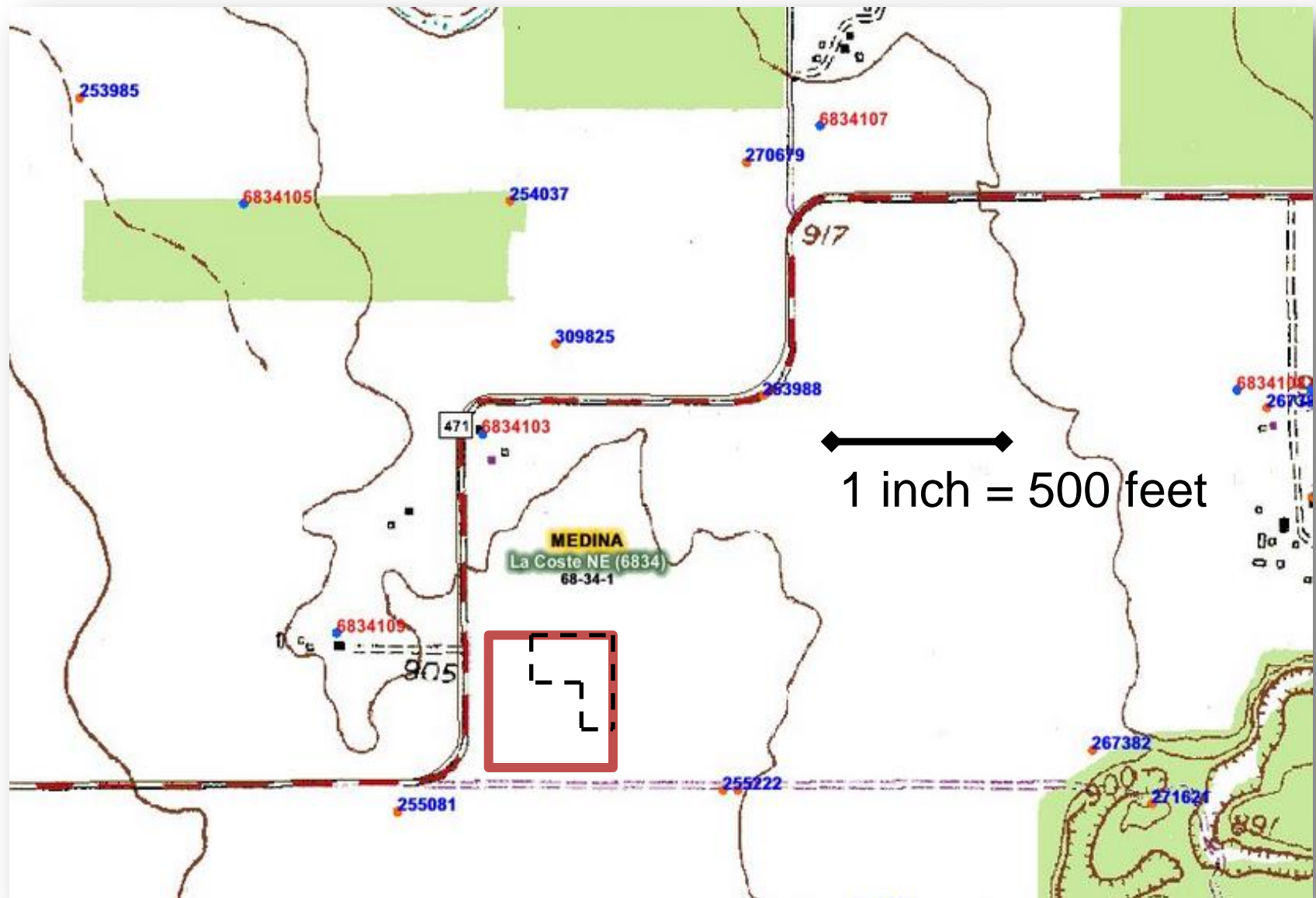
Offset Landowners



Receptors within 500 feet



<http://wiid.twdb.state.tx.us>



Off-Lease or Centralized Solid Waste - 2 years



§4.234. & §4.241. Facility Design and Construction.

- Facility diagram
- Monitor wells
 - Boring logs (USCS), well completion logs, survey elevations, and potentiometric map

§4.235. & §4.242. Facility Operations.

- Plan to control unauthorized access
- Estimated duration of operation

§4.236. & §4.243. Facility Monitoring.

- Quarterly report including monitor well analyses
- Records of commercial sales or location of reuse by Generator

§4.237. & §4.244. Facility Closure.

- Soil and groundwater sampling
- Plug monitor wells

Stationary Solid Waste Recycling - 2+ years



- Treating O&G solids for reuse as roadbase from multiple leases or units
- Applicable requirements from Off-lease Roadbase and...

§4.254. Notice.

- Tx Natural Resources Code §91.116 – Published Notice
- Notice of application in a newspaper of general circulation in the county with affidavit
- Once a week for two consecutive weeks



Solid Waste Divisions Review

- Location and Duration
 - Division 2: On-lease for 1 year
 - Division 3: Off-lease or Centralized for 2 years
 - Division 4: Stationary for more than 2 years
- Site and Property Information, Monitor wells and Financial Security required for Off-lease, Centralized and Stationary Solid Waste Recycling Facilities
- Notice Requirements
 - Surface owner permission for On-lease
 - Surface and Adjacent owners for Off-lease and Centralized
 - Landowners and Published notice for Stationary



COMMERCIAL RECYCLING RULES FLUID RECYCLING – DIVISIONS 5 & 6



Fluid Recycling – Divisions 5 & 6

- Application requirements are outlined the same for Division 5 as Division 3 (2 years) and the same for Division 6 as Division 4 (stationary) except that
 - Commission has not established minimum standards for water quality because requirements for reuse varies, so
 - Standards will be dictated by permit or by authorized reuse (§3.8):
 - No standard for reuse “downhole”
 - Other State or Federal authorities
 - Distilled water



Off-Lease Fluid Recycling - 2 years

- Off-lease treatment of oil and gas fluids for reuse

§4.264. Minimum Siting Information.

§4.265. Minimum Real Property Information.

§4.266. & §4.273. Facility Design and Construction.

§4.267. & §4.274. Facility Operating.



Off-Lease Fluid Recycling - 2 years

§4.268. & §4.275. Facility Monitoring.

§4.269. Facility Closure.

§4.270. Notice.

§4.271. General Permit Provisions.

§4.272. Minimum Permit Provisions for Siting.



Off-Lease Fluid Recycling Reminder

- Fluid recycling at a commercial disposal well (SWD) or commercial injection well is authorized without permit by Ch.4, Sub.B, if
 - The Operator of the well has Financial Security (§3.78) and responsibility for all activities at the facility, and registers w/ the District Office, but
 - A Commercial Fluid Recycling Pit permit is required.



Stationary Fluid Recycling - 2+ years

- Applicable requirements from Off-Lease Fluid Recycling and...

§4.286. Notice.

- Tx Natural Resources Code §91.116 – Published Notice
- Notice of application in a newspaper of general circulation in the county
- Once a week for two consecutive weeks



Fluid Divisions Review

- Water quality standards dictated by reuse
- Location and Duration
 - Non-Commercial Fluid Recycling Authorized by Rule 8
 - Division 5: Off-lease for 2 years
 - Division 6: Stationary for 2 or more
- Site and Property Information, Monitor wells and Financial Security required for Off-lease and Stationary
- Notice Requirements
 - Surface and Adjacent owners for Off-lease
 - Landowners and published notice for Stationary

Thank you. Questions?



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If there's extra time:



HELPFUL TIPS FOR PERMITTING PITS



Permitting Pits

- Submit an Application for Permit to Maintain and Use a Pit (Form H-11) to Austin and District Office
- And the supplemental information required by the back of the Form H-11

<http://www.rrc.texas.gov/oil-gas/forms/oil-gas-forms-library/oil-gas-forms-in-alphabetical-order/>

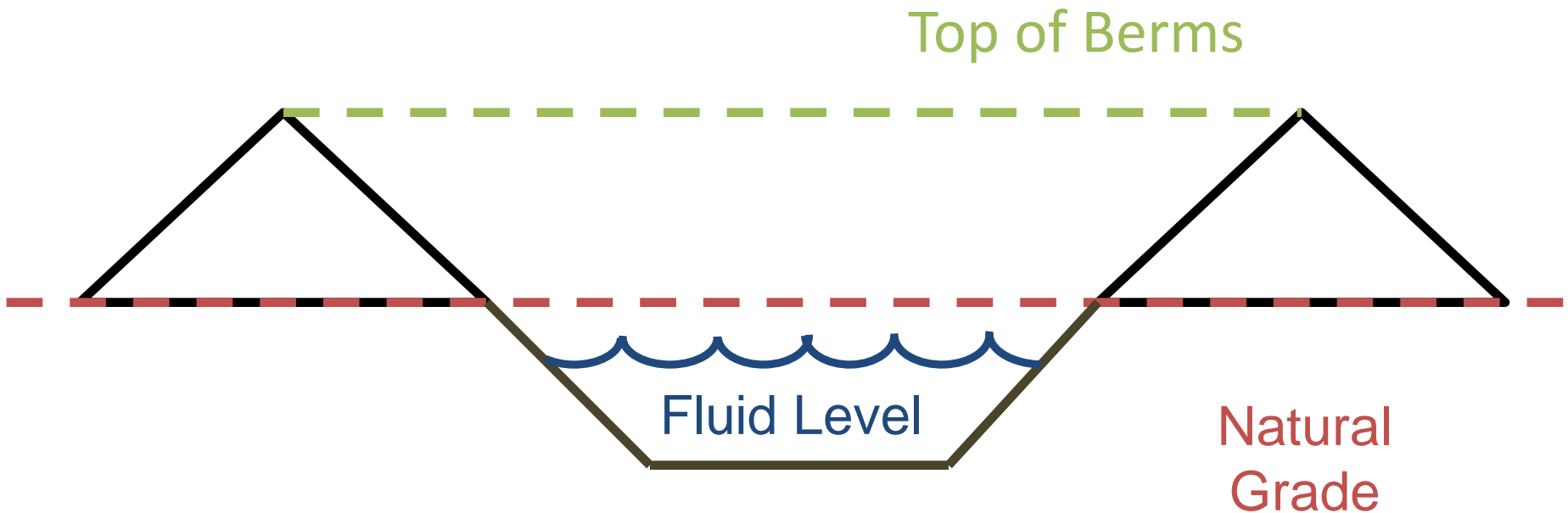
X *Original Signature*



... You might be a Pit.

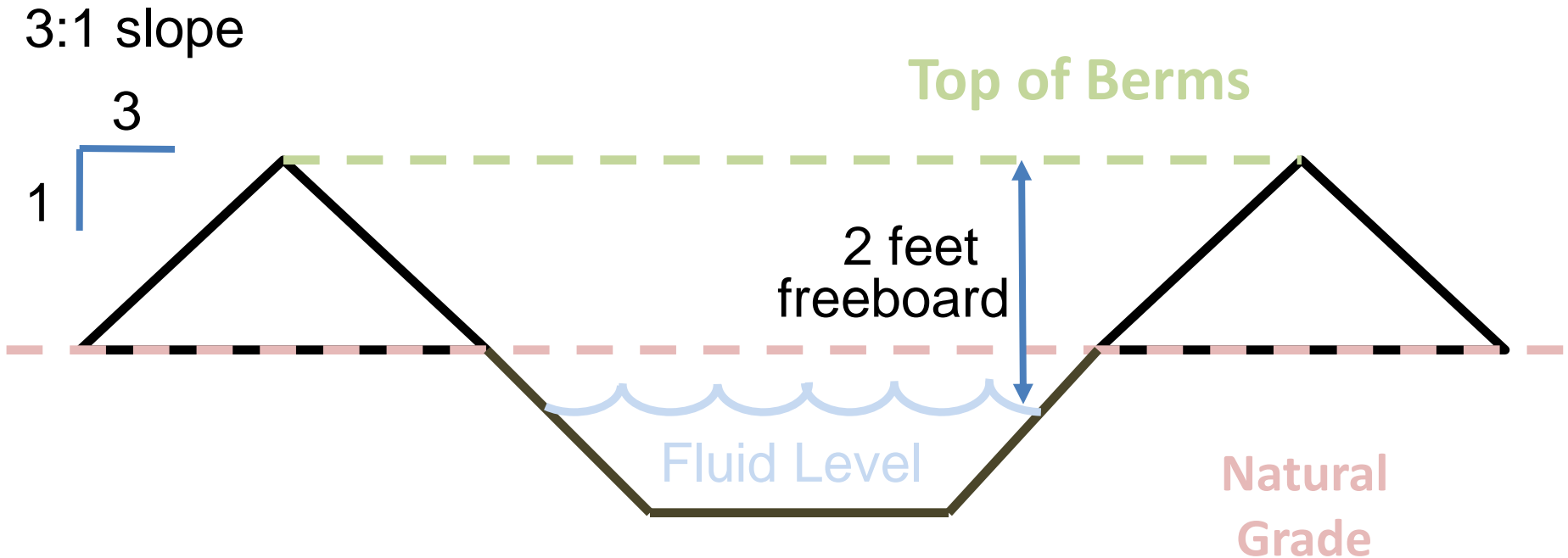
- If it's in contact with the ground, but not an above-ground storage tank
- If it's below grade (even if it's just a little bit)
- If it's a "sump" larger than 500 gallons
- If it's a concrete structure that cannot be *easily and quickly* moved to be checked for leaks
- If it's a steel containment ring with a plastic liner

Cross section example



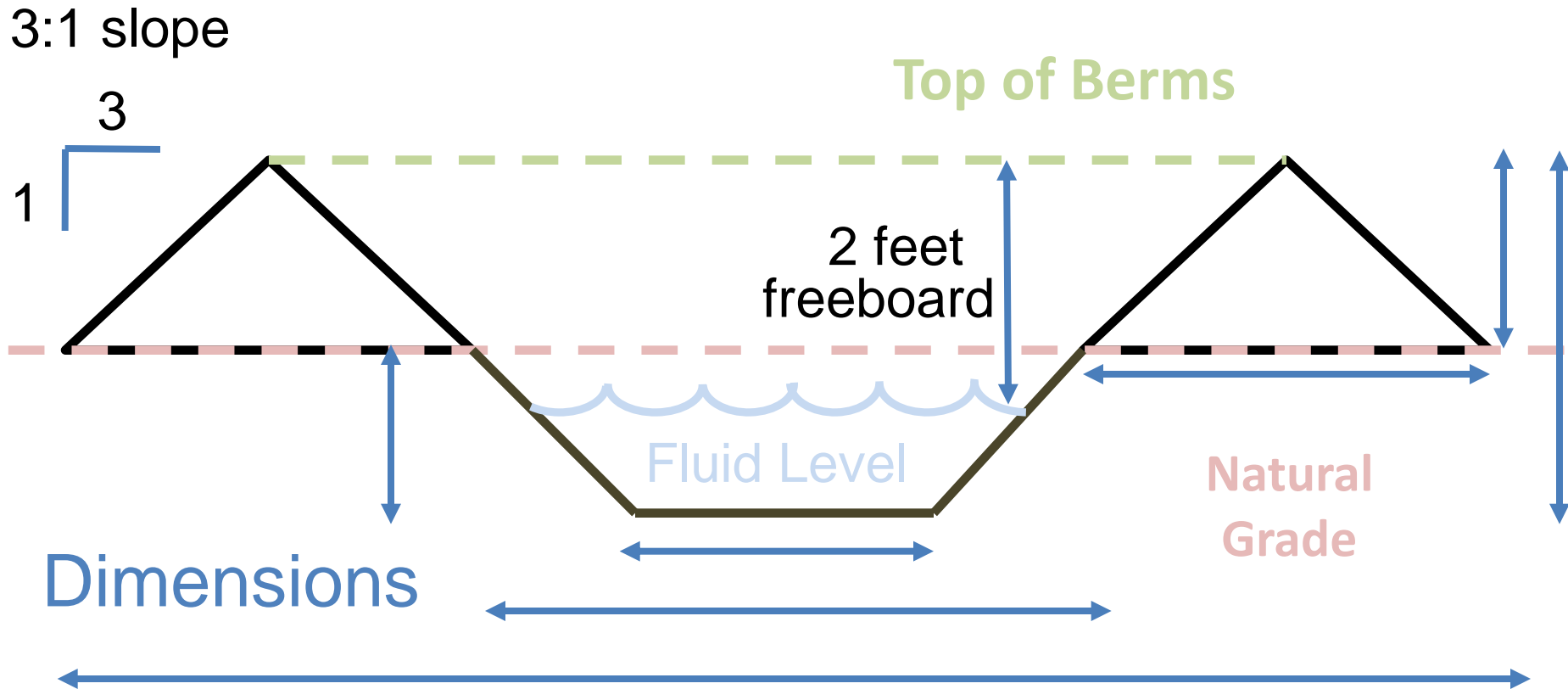
This is only one cross section— Two are required.
Two cross sections and one plan view (bird's eye) is best!

Cross section example



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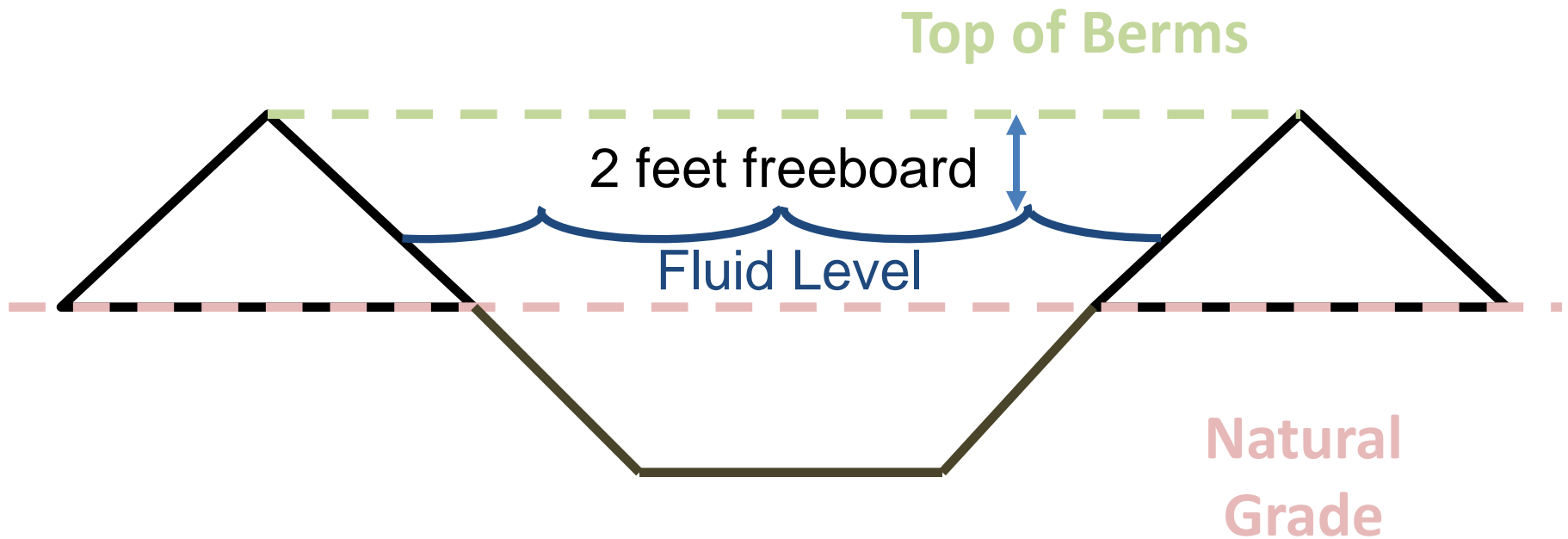
Cross section example



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Two cross sections and one plan view (bird's eye) is best!



Fluid Stored Above Grade



Texas P.E. seal and signature REQUIRED